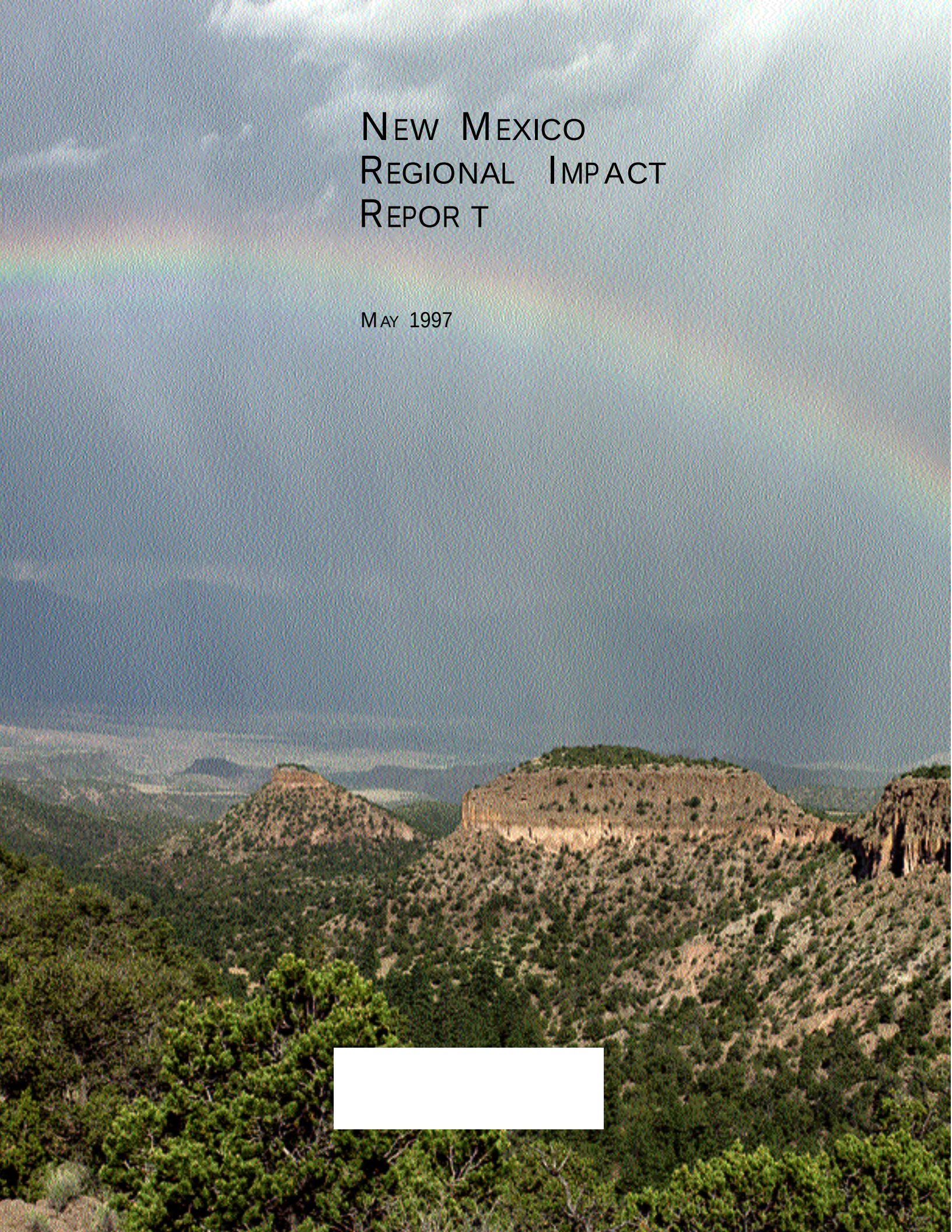

NEW MEXICO REGIONAL IMPACT REPORT

MAY 1997

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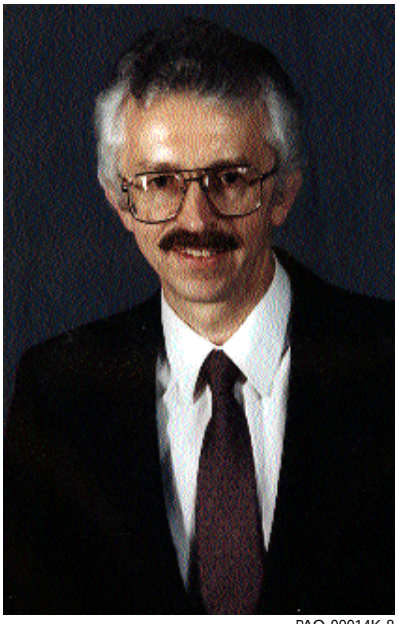

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Director, Sig Hecker

DIRECTOR 'S STATEMENT

I'm pleased to introduce Los Alamos National Laboratory's (the Laboratory's) Regional Impact report. We are in the midst of some very exciting opportunities that are gaining momentum daily. We hired Tom Garcia, former US West Vice President and CEO, to spearhead our outreach activities and economic development efforts in the region. As Director of Institutional Development, Tom is leading a course that will result in an economy that is less dependent on federal expenditures.

The Laboratory's relationship with industry continues to evolve as the world moves to a global marketplace and as our missions change. Our strategic plan will provide many more jobs through the growth of small businesses and through partnerships with major companies interested in locating in northern New Mexico. For example, we project several hundred million dollars in Laboratory construction projects over the next 5 to 10 years including a subcontract for architectural and engineering services with Fluor-Daniel, who is planning to locate in Española; the Facility Support Services Subcontract, which has a potential of $800 million over ten years, and Motorola, who is interested in relocating their research and development office in Los Alamos, to work with us on areas of mutual scientific and engineering interests. These Laboratory initiatives, among others, will provide jobs and numerous business opportunities. We are planning to support more of these partnerships by working directly with industry.

The Department of Energy (DOE) and the University of California have also increased their investment in the region. The DOE's recent contract with Burns and Roe Enterprises and General Atomics Corporation has a significant economic development requirement. This subcontract will support the design engineering and development of components for the Accelerator Production of Tritium (APT) program. The University of California has increased its presence in northern New Mexico through its local office and is participating in a number of working groups that address technology transfer, procurement, and education issues.

In addition, we have explicitly established institutional tactical goals that directly relate to regional economic development. They are "productivity and strategic business development," "embrace diversity," and "corporate citizenship." These goals together with metrics will set the Laboratory's direction for the future.

This report describes new initiatives that are underway as well as our accomplishments relative to economic impact in the region. I invite you to review these highlights and give us feedback on ways that we can continue to work in partnership with local institutions and to improve the economic health of the region while preserving the quality of life that is so critical in the northern New Mexico culture and lifestyle.

S.S. Hecker
Director


BRADBURY SCIENCE MUSEUM

NEW INVESTMENTS IN THE COMMUNITY

Corporate Citizenship

Our respect for and appreciation of our neighbors is a significant factor in our contribution to the well-being of the region. Being a good corporate citizen involves a significant investment in New Mexico. With this investment, the Laboratory helps create more New Mexico jobs, a more diversified local economy, and a view by the communities that the Laboratory is a valuable partner. Our strategy includes efforts to strengthen our community outreach activities, leverage contracts to encourage supplier relocation and economic development, increase private sector investment, encourage high-tech spinoffs, and provide direct economic contributions in local communities and educational systems.

University of California Office of the President

The University of California (UC) established an office in northern New Mexico to function as a focal point for strengthening its relationship with regional communities and other entities within the state. The University of California Northern New Mexico Office is based in downtown Los Alamos at 1350 Central Avenue, Suite 101, adjoining the Bradbury Science Museum.

The work of the office will be purposely diverse in nature to demonstrate and make greater use of the range of capabilities UC brings to its management of the Laboratory. A particular, initial emphasis of the office will be to support joint efforts directed toward increased development and diversification of the northern New Mexico economy and the development of new initiatives in technology transfer, educational outreach, and corporate citizenship. The office is a key link in UC's commitment to work more closely with the Laboratory and its neighboring communities, the Department of Energy, and other constituencies in areas crucial to the future of these shared relationships and the stability of the region.

Employee Good Neighbor Program

The Good Neighbor Program (GNP) is a proposed Community Involvement and Outreach (CIO) initiative that will identify Laboratory employees who are currently involved in the activities of their communities and bring them together on a periodic basis to meet with CIO staff and Laboratory managers. The meetings will provide an opportunity for these “Good Neighbors” to bring up

Fiesta del Valle de Española.

Española Spirit Days.

Laboratory-related issues of interest to their communities and allow Laboratory management to announce information that may be of interest in the area. A forum like this has been requested by community groups, Laboratory employees, and management. This program is a good way for the Laboratory to listen to community concerns and announce Laboratory programs and other activities. There are many Laboratory employees already helping out in their communities, and this program can align both efforts to make the Laboratory more aware of, and responsive to, community concerns.

"Good Neighbors" will be a diverse group of employees who are already active in their communities and who want to make a difference in the relationship between the Laboratory and northern New Mexico. The GNP will focus on informal person-to-person communication to increase dialogue with the full spectrum of people and organizations affected by the Laboratory's programs.

Economic De velopment

In an effort to promote, encourage, and create economic development and diversification opportunities for the region, the Laboratory is engaged in several promising activities.

Regional Development Corporation

The Regional Development Corporation (RDC) and Los Alamos National Laboratory have entered into a memorandum of agreement (MOA). The RDC, which is the Department of Energy's local community reuse organization, is charged with the goals of mitigating any reduction in federal spending in north central New Mexico by helping expand and diversify the regional economy. The RDC is developing and implementing strategies for achieving these objectives using initial funding provided by the DOE and funding and resources contributed by others. This initial funding committed by DOE is currently at the level of $10 million. The RDC has allocated $3.2 million of those funds for community projects. These include:

- revolving loan fund ($750K)
- in-plant training fund ($750K)
- business incubator building ($390K), Española

- land authority ($60K), Rio Arriba County
- small business retention ($30K), City of Santa Fe
- airport industrial park planning ($20K), City of Santa Fe
- industrial park water improvement ($100K), Santa Fe County
- office/telecommunications project ($150K), Eight Northern Indian Pueblos
- land trust corporation ($300K), Los Alamos County
- clean room training facility ($200K), Northern New Mexico Community College;
- distance education facility ($200K), University of New Mexico, Los Alamos
- telecommunications project ($100K), Santa Fe Community College

The RDC Board of Directors is made up of individuals from the City of Española, County of Rio Arriba, Los Alamos County, City and County of Santa Fe, Eight Northern Indian Pueblos, and the higher education community. The Laboratory, through the MOA, serves as a formal liaison to the RDC.

Los Alamos Research Park

The Laboratory, the University of California, and the Department of Energy (DOE/LAO), and Los Alamos County have entered into a partnership that will lead to the conceptual planning, design, and development of the cutting-edge high technology at the Los Alamos Research Park. A 50,000 square-foot building is planned to house research and development (R&D) companies. This effort represents a unique opportunity to capitalize on the collective assets and interests of the partnership that will target Fortune 500 companies to locate close to the Laboratory and jointly develop new-generation technologies related to telecommunications, modeling and simulation, sensors, advanced chemical and materials science capabilities, and many other next-generation, world-wide, market-based technical capabilities.

Los Alamos Research Park site.

The DOE has contributed its property at the site of the Los Alamos Research Park, which consists of 60 acres with the possibility of adding an additional 100 acres if necessary. The land

will be leased to Los Alamos County for an extended number of years, and the County, through a newly formed 501 (C) 3, the Los Alamos Economic Development Authority, will act as the master planning and development arm for the park. The Los Alamos County involvement in the project speaks to a rather unique opportunity for supporting its own efforts toward self-sufficiency, and the project is also complimentary to the DOE's effort to provide new opportunities for a stronger and diverse economy.

This partnership will work toward and remain sensitive to maintaining a critical balance of business, culture, and lifestyle to ensure that the Los Alamos Research Park will develop over a period of years as a complimentary and proactive part of the social and environmental fabric that makes northern New Mexico so unique.

Interest has been expressed by several major companies such as Motorola in relocating their R&D office to the Los Alamos Research Park.

Contracting/Purchasing Program

The Contracting/Purchasing Program at the Los Alamos National Laboratory is actively implementing certain regional economic development initiatives consistent with the prime contract between the University of California and the Department of Energy.

The **Northern New Mexico Procurement Advisory Council** was established to provide advice to the University of California and the Laboratory regarding the use of regional purchasing strategies to assist in economic development. The council is responsible for identifying the needs of its customers and for developing action plans, scheduling, and assigning champions to accomplish the task. The Council has been successful in providing local computer access for suppliers in the tri-county area and monthly training sessions on various subjects. The committee is currently working on the expansion of the small business database to include information such as access to the labor force, information on local suppliers, community profile information, land/facility availability, knowledge of local small, small disadvantaged, and women-owned suppliers, access to the Laboratory's prime contractors, and knowledge of the Laboratory's procurement opportunities.

The Council represents members from diverse backgrounds, including the business community, local chambers of commerce, local banks, the University of California, and the Laboratory.

Procurement has a direct major impact on New Mexico, including northern New Mexico. During FY 1996, the Laboratory spent $601.8M in total procurement dollars for its supplies, goods and services. Of this amount, $224.7M was spent in northern New Mexico, 50% of which was spent on the Laboratory's two major on-site support subcontractors: Johnson Controls World Services, Inc. (JCI) and Protection Technology Los Alamos (PTLA).

The JCI and PTLA subcontracts will expire in fiscal year 1997, and the Laboratory has taken a proactive role by adding new features into both the **Support Services Subcontract** and the **Protective Force solicitations.**

The successful subcontractors will be expected to become a vital part of northern New Mexico communities through a variety of means and to plan and implement business decisions and practices that contribute in meaningful and measurable ways to regional economic development. Proposals will be evaluated on the following criteria:

- experience and past performance regarding corporate citizenship
- economic development as well as their proposed approach to address job creation, corporate investments, and diversification of the economy in northern New Mexico
- subcontract 25% of business to small, small disadvantaged, and women-owned businesses
- protect incumbent workforce

Through its procurement policies, the University is also embarking on other opportunities to strengthen regional business enterprises, stimulate greater employment and infrastructure, increase the business tax base in northern New Mexico, and reduce the regional dependence on federal investment.

For example, businesses in northern New Mexico may be given preference for awards when it is determined that the vendor is capable of performing the contract and the award represents the "best value" to the Laboratory. This initiative will become visible

PTLA security guard.

in 1997 and become highly visible if the major construction efforts that are planned for Los Alamos come to fruition. This policy will be applied to major subcontractors in the event that the construction efforts require a large business to manage the project.

The University is also actively negotiating with the Department of Energy to adopt procurement practices intended to attract new businesses to northern New Mexico where regional capabilities do not exist. Subcontractors from outside the region may be required to establish a regional base and employ locally as part of the subcontract. Further, consistent with other purchasing principles and practices, subcontractors may be required to subcontract functions to create new capabilities for regional businesses. Care, however, will be taken to avoid "importing" new businesses that would unfairly compete with existing regional businesses for commercial sales.

In addition, efforts are underway for the University to partner and form business alliances with regional vendors of goods and services. These alliances will encourage regional trade associations and may include training programs to enable regional vendors to compete effectively for University subcontracts and purchase orders and to establish business systems to meet the audit and reporting requirements of the University and DOE.

Industrial Partnership Office

The University is committed to making these initiatives work and explore others for the betterment of a healthier economy in northern New Mexico. The Regional Purchasing Program reflects the efforts of the University and DOE to ensure that Laboratory business practices are conducted in a manner that has a positive impact of the region, which ultimately will bring more jobs, corporate investments, and diversification to northern New Mexico.

Technology Commercialization Office

The Technology Commercialization Office (TCO) serves as the proactive catalytic focal point for regional initiatives, training programs, networking activities, and the nurturing of new high-technology startups in New Mexico. In addition to supporting entrepreneurship among Laboratory employees, it also involves the private-sector business community as well as key stakeholders in planning and implementing programs. By linking these regionally focused initiatives with similar startup business development, management talent pools, high-tech incubators, and investors in the entrepreneurial centers of California, Texas, Ore-

gon, Colorado, Arizona, and the East Coast, the TCO will also tap into and involve the best expertise and advisors available nationally.

Through these outreach initiatives, diversified high-tech business creation and growth will occur more rapidly in the region.

The Laboratory's Small Business Initiative program has increased its commitment and expertise at work for north-central New Mexico as follows:

- growing commitment from $800K in FY 1996 to $1.4M in FY 1997
- partner contributions amounts to $4M at work in region
- 11 cooperative R&D agreements and 9 technology maturation projects
- project results in improved products, revolutionary products, new start-up businesses, new jobs

In addition, the Laboratory has increased its entrepreneurial activity by encouraging and supporting Laboratory spinoffs. During 1996, 38 new direct jobs were created through two technology spinoffs.

Direct Economic Contributions

The Laboratory is committed to providing direct economic contributions to the region through various initiatives and programs.

Los Alamos National Laboratory Foundation

The Laboratory is creating a philanthropic entity to be known as the Los Alamos National Foundation. The Foundation will foster and manage gift and grant support, assisting in the promotion and financial support of the educational and public service activities of the Laboratory.

The Foundation will support:

- $500K for community development grants
- $500K for educational outreach
- $2M/year for regional educational enrichment

The Foundation is scheduled to begin operation in early 1997. One of the goals is to implement a focused program of community investments designed to meet relevant intellectual and social

needs of communities in **Los Alamos, Mora, Rio Arriba, Sandoval, San Miguel, Santa Fe,** and **Taos** counties. The proposed focused areas include the following:

- formal and informal education
- math and science literacy
- health and human services
- youth leadership (including scholarships)
- civic advancement and partnership

United Way

Laboratory employees and UC contributed more than $414,000 to the 1996 United Way campaign in northern New Mexico and Los Alamos.

Scholarships

In cooperation with UC, the Laboratory has provided $40,000 in scholarships to students from several communities and ten pueblos in northern New Mexico. The Laboratory also committed to a $10,000.00 endowment scholarship through Northern New Mexico Community College.

Computing Infrastructure

The Laboratory has helped 86 elementary schools in 17 districts across New Mexico implement computing networking infrastructures and has helped 6 community colleges and 12 other organizations, including department of education and regional technology centers.

Gross Receipts Tax

Through the Laboratory's vendors and subcontractors, the Laboratory paid a significant amount of gross receipts tax on procurement of more than $601 million in goods and services in 1996.

Workforce Development

The Laboratory is committed to improving the quality of education and to ensuring a highly trained and diverse workforce.

Northern New Mexico Job Access Project

The Laboratory has partnered with the New Mexico Department of Labor, Northern New Mexico Community College, Santa Fe Community College, and the University of New Mexico in Los

Alamos (UNM-LA) to develop a process that will promote efficient access to job opportunities in northern New Mexico for job seekers and employees. The objective is to create an electronic network of service providers and processes that facilitate efficient access for New Mexican job seekers to emerging job opportunities, and to sustain a central repository (a job skills and talent bank) of the regions work force for access by current and prospective employers.

Electro-Mechanical Technology Student Training Program

As part of the Laboratory's retraining and recruitment programs, the Laboratory and UNM-LA have partnered to design and implement a two-year Electro-Mechanical Technology student training program and deliver a customized associate degree program in chemical technology. The Electro-Mechanical Technology program provides trainees with internships at the Laboratory and relevant courses at UNM-LA. Upon completion of the program, students will be awarded a certificate in Electro-Mechanical Technology and will have an opportunity to pursue continued employment at the Laboratory. The Laboratory and UNM-LA partnership in the chemical technology education program began in the Fall of 1994 and offered Laboratory employees and the community an opportunity to receive an Associate of Applied Science in Chemical Technology. There are currently ten Laboratory employees in this program. Both of these programs received Laboratory development funding and design collaboration.

Training Services

In October 1996, the Laboratory outsourced its computer applications courses, such as Word, Excel, Windows 95, Windows NT, and Power-Point to UNM-LA. This program is delivered by UNM-LA on a fee-for-service basis. These courses are delivered to Laboratory employees and Laboratory contractors with the goal of also being a foundation for UNM-LA computer training services to the community.

The Laboratory training staff is currently exploring how its process for selecting vendors to develop and present appropriate training courses can better recognize area community college expertise. As part of this process, the Laboratory has put out a request for proposal (RFP) to the local community colleges for course development.

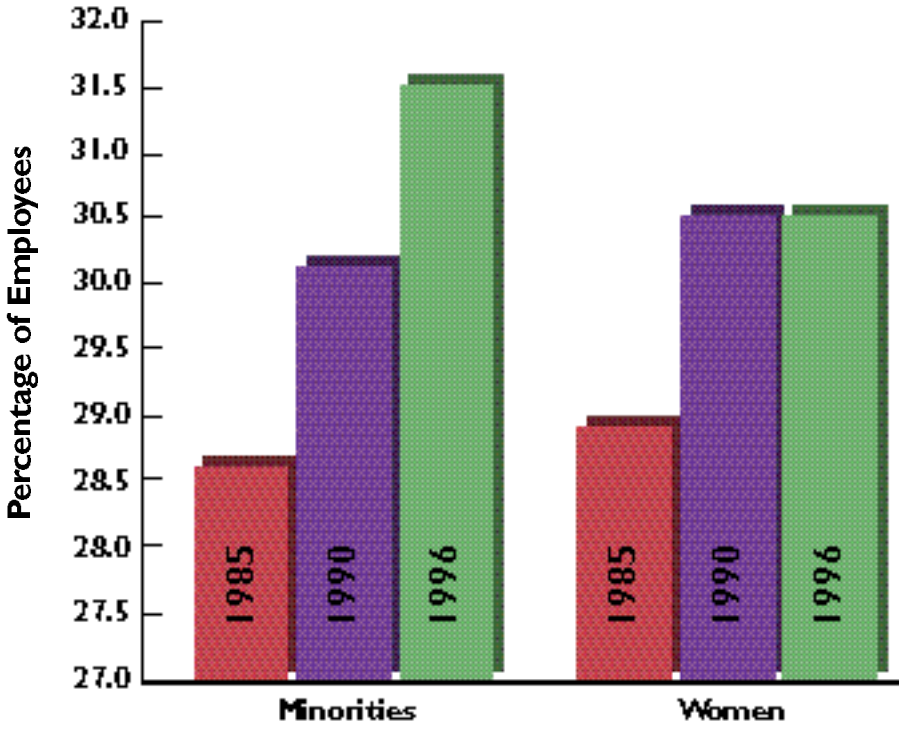
Diversity

Diversity in the workforce is a high priority at Los Alamos, and steps are being taken to ensure that a diverse workforce becomes a defining characteristic of the Laboratory.

As part of the Laboratory's institutional goals, the Laboratory has established a **Diversity External Advisory Council** to enhance the involvement of its surrounding communities in its diversity efforts. The Laboratory's goal is to improve diversity in the following areas:

- enhance the workforce in the technical staff member and manager categories
- strengthen the science education outreach program
- increase the involvement of the surrounding communities in diversity efforts

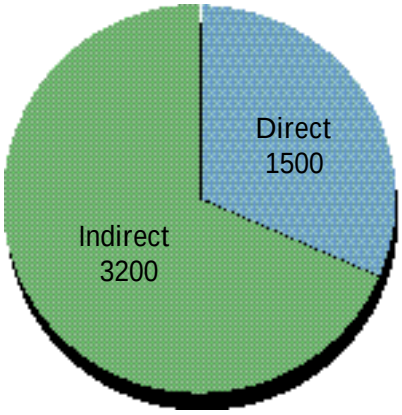
Full-Time/Part-Time Regular Employees
Dec. 31, 1985—Dec. 31, 1996



Job Projections

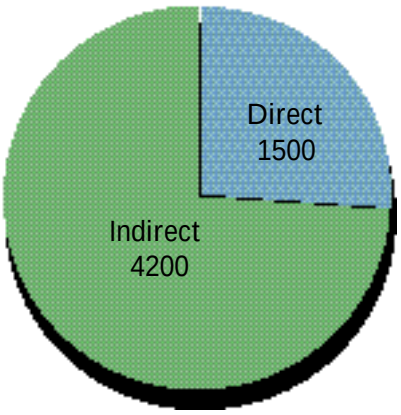
FY 1997–2001

Annual Economic Impact on Tri-County Region (Los Alamos, Rio Arriba,Santa Fe)



Total New Jobs
4700

Annual Economic Impact on State of New Mexico



Total New Jobs
5700

** (Assumption: New jobs created are based on the Laboratory's total budget, funding of new construction projects, and partnerships with industry.)*

*** This represents about a 15% increase over the current level of employment.*

Contacts:

Regional Development Corporation
Tonya Suazo
667-5774

Human Resources & Training
John Herrera
667-4536

Contracting/Procurement
Dennis Roybal
667-9215

Los Alamos Research Park
Elmer Salazar
667-5720

Technology Commercialization
Sue Fenimore
665-5376

Corporate Citizenship
Albert Jiron
665-5005

Diversity
Michael Trujillo
667-8695

Job Projections
Robert Drake
667-4442

Data Profile

January 1997

Personnel	Workforce	Salaries/Benefits ($)
Lab (nonstudent)	6,953	$455.3 million
Lab (students)	1,303	13.2 million
Affiliates	1,264	3.0 million
Special Program Guests	304	.8 million
Johnson Controls, Inc. (JCI)	1,386	55.3 million
Protection Technology (PTLA)	397	17.4 million
Contract Labor	1,146	45.7 million
Total Workforce	12,753	$590.7 million

BASE SALARIES		EMPLOYEES	
Rio Arriba County		***Rio Arriba County***	
Lab:	$50.6 million	Lab:	1,340 people
JCI:	17.5	JCI:	604
PTLA:	5.5	PTLA:	158
Taos County		***Taos County***	
Lab:	$1.6 million	Lab:	41 people
JCI:	1.6	JCI:	52
PTLA:	0.5	PTLA:	16
Santa Fe County		***Santa Fe County***	
Lab:	$81.5 million	Lab:	1,434 people
JCI:	10.7	JCI:	305
PTLA:	3.3	PTLA:	92
Los Alamos County		***Los Alamos County***	
Lab:	$289.2 million	Lab:	4,724 people
JCI:	8.7	JCI:	227
PTLA:	4.1	PTLA:	103
Bernalillo County		***Bernalillo County***	
Lab:	$7.3 million	Lab:	134 people
JCI:	3.8	JCI:	98
PTLA:	0.5	PTLA:	12
Sandoval County		***Sandoval County***	
Lab:	$8.6 million	Lab:	153 people
JCI:	1.5	JCI:	38
PTLA:	0.5	PTLA:	12
All Other		***All Other***	
Lab:	$17.9 million	Lab:	415 people
JCI:	2.3	JCI:	62
PTLA:	0.1	PTLA:	4

Residence of Lab Employees

Los Alamos County	57%
Other	43%

Residence of Subcontractor* Employees

Los Alamos County	19%
Other	81%

*only JCI and PTLA

Economic Impact of LANL Retirees on the State of New Mexico

County	UCRP *Retirees	Total Yearly Benefit
Los Alamos	880	$23,278,177
Santa Fe	269	5,684,928
Rio Arriba	177	2,746,995
Other NM	343	5,931,223
TOTAL:	1,699	37,641,323
*PERS (*Preliminary data - not shown by county)*		
New Mexico	1,652	40,280,502
TOTAL:	3,321	$77,921,825

Impact on NM Economy

Total Economic Impact	$4.1 billion
3-County Impact (RA, SF, LA)	$3.4 billion

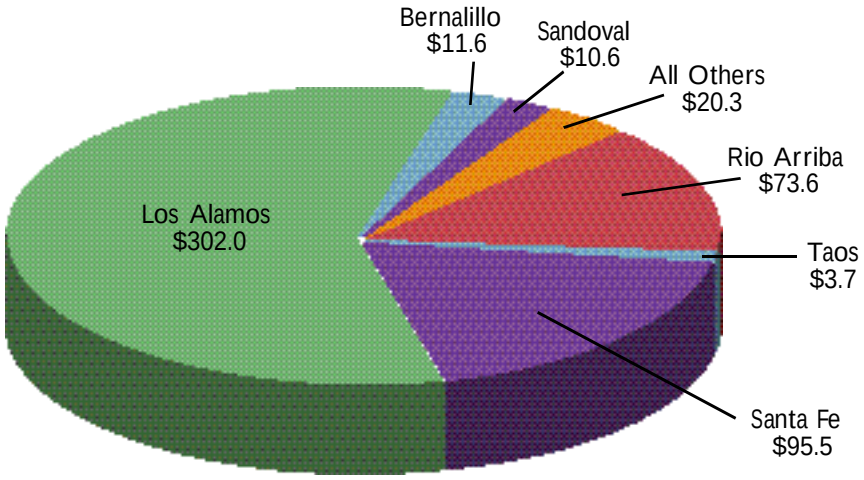
(4.8% of total NM economy & 30.1% of 3-County economy)

Impact on NM Employment

Total Employment Impact	33,961 people

(4.6% of total NM Employment)

Salary by County
($ in millions)



FY96 Procurement
(Goods and services purchased in support of Lab operations)

Total USA	$601.8
Total New Mexico*	371.2
Total Northern New Mexico	224.7 million

** May include blanket contracts—total value may or may not have been realized in FY96.*

*** $112.5 million for two major on-site contractors (JCI and PTLA) who redistribute $47.3 million in salaries outside Los Alamos County and pay over $6 million in gross-receipts tax.*

County	Expenditure ($)
Los Alamos**	$197,716,569
Bernalillo	146,101,415
Santa Fe	22,331,421
Rio Arriba	2,881,004
San Juan	798,961
Socorro	281,907
Eddy	213,142
Chavez	210,000
Dona Ana	191,371
Sandorval	174,786
Cibola	166,685
Taos	96,082
Mora	10,550
All Others	49,674

Operating budget
FY97 estimate $1.11 billion

Site Characteristics

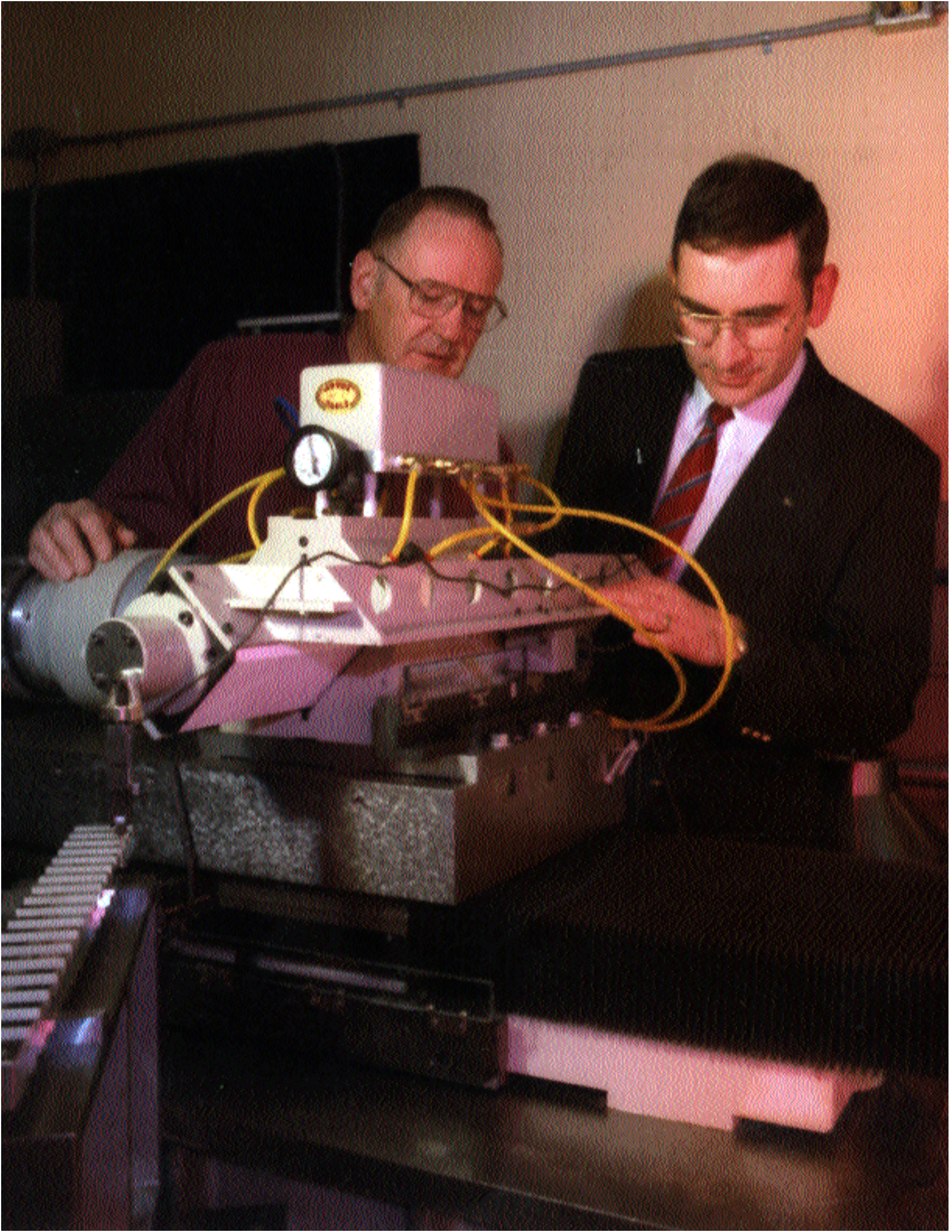
Land area	43 sq. mi.
Technical areas	50 sites
Facilities	2,224 bldgs.

Four-County Demographic Summary

County	Population (1994)	Per capita Income (1994)
Los Alamos	18,520	$29,762
Rio Arriba	36,297	11,731
Santa Fe	112,238	22,538
Taos	24,988	13,569

Sources:

- Office of Management Planning and Analysis,Albuquerque Operations Office, US DOE
- New Mexico Department of Economic Development
- Los Alamos National Laboratory

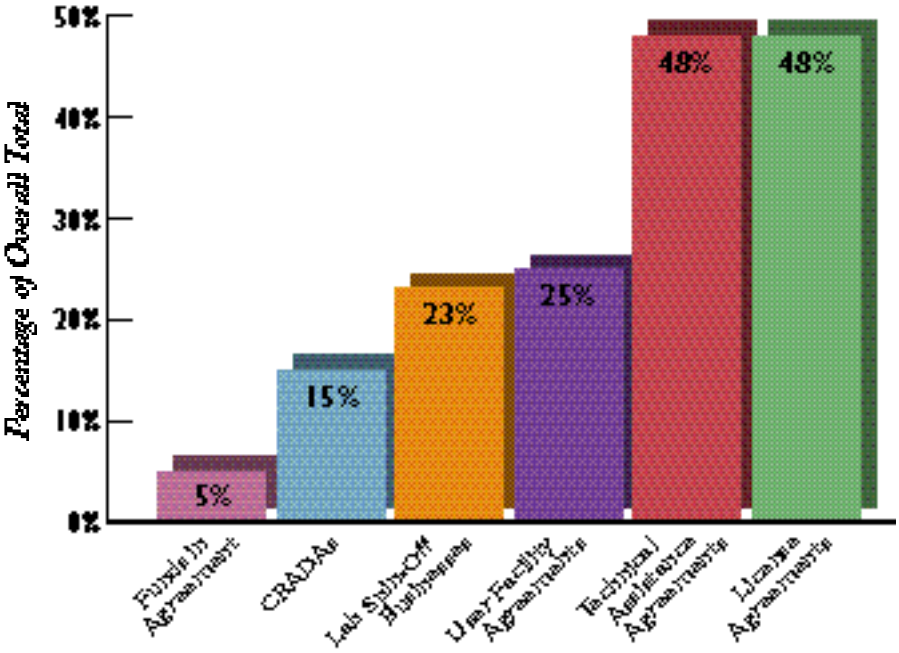


Industrial Partnerships and Regional Economic Development

The Industrial Partnership Office (IPO) serves as the single point of contact for industrial collaboration between US companies and Los Alamos National Laboratory's (the Laboratory's) scientific and technical resources. The IPO's role is to promote the sharing that lies at the base of successful industrial collaborations—the sharing of employees, equipment, expertise, and technologies.

The Laboratory is committed to ensuring that the State of New Mexico's communities have appropriate access to the Laboratory's vast array of technologies and the strengths, talents, and expertise of its personnel. IPO has an aggressive Small Business and Regional Initiative to facilitate partnerships between the Laboratory and small businesses and those owned by women and minorities. Our partnerships between the Laboratory and New Mexico institutions, businesses, and government organizations are seen as an important part of the necessary foundation for enhancing local economic well-being.

FY96 Laboratory Industrial Partnerships in New Mexico



Total value of partnerships in New Mexico equals $8,432,637.

Telecommunications

The Laboratory has worked very closely with **Northern New Mexico Community College (NNMCC)**, which has identified the development of telecommunications infrastructure as one of its priorities. The College has become the focal point for the expansion of telecommunications capabilities in the community as well as developing a regional network for **Rio Arriba County**. Because we recognize that telecommunications supports business, education, and medical applications, we have shared our technical competence in this area to increase the College's productivity. Our assistance this year included the following:

- Helped to set up NNMCC's Internet access by configuring routers and dial-up access servers; installed Internet software on the first set of the college's personal computers and trained the staff to install the system throughout the campus;
- Conducted a number of Internet training workshops throughout the year for NNMCC staff, city/county government, pueblo administrators, teachers and regional school administrators, and small businesses;
- Consulted with NNMCC staff on providing Internet access to the El Rito Campus;
- Negotiated the private donation of a $30,000 router that allowed NNMCC to connect additional sites to the Internet, including nonprofit organizations such as clinics, hospitals, and Siete del Norte;
- Worked with the **City of Española** and the **Española Community Library** to connect to the Internet through NNMCC;
- Consulted with the **Eight Northern Pueblos Council** and five of the local pueblos to establish a regional telecommunications network. Several training classes were conducted at NNMCC for pueblo teachers and administrators to help them understand the potential of the Internet; and
- Developed a proposal and long-range plan with NNMCC and GTE, the local telecommunications provider, for a wide-area communication network and frame relay service in Rio Arriba County.

Telemedicine

During 1996, the Laboratory led an effort to develop a regional computing capability for telemedicine applications. This regional effort finds its roots in a Laboratory-Directed Research and Development (LDRD) funded project called Sunrise. The Sunrise Project was a coordinated effort to develop a nationally scalable, high-performance, networked computing environment. This project can support health care and materials and engineering applications through a suite of applications and a common infrastructure that can effectively and efficiently manage large amounts of information.

From this technology base, the **Northern New Mexico Telemedicine Project** will develop a World Wide Web/Internet-based medical information management and exchange infrastructure for **two medical centers and 18 health clinics** located in nine counties across northern New Mexico. Funding for this project was the result of a consolidated partnership of the hospitals, the clinics, NNMCC, corporate partners, and the Laboratory joining together to submit a grant proposal to the Department of Commerce/National Telecommunications Infrastructure Administration (NTIA) for support of the project. With key support coming from the **New Mexico Congressional Delegation** and other local leaders, the project was awarded $500,000 for deployment of this Laboratory-based technology in northern New Mexico.

The Laboratory took the lead in the following:

- Provided technical staff and computing resources for scaling of the telemedicine hardware and software
- Provided technical staff writers for the development of the NTIA funding proposal
- Led the effort for a donation by Intel Corporation to provide 10 Pentium-based/200-MHz computers valued at $60,000 to support the hardware and software needs of the project
- Contracted with Information Assets Management, a private local business, to conduct an in-depth inventory, analysis, and evaluation of existing computing capabilities at the hospitals and clinics

Photo courtesy of Gino Brazil.

Intel computer donations fuel Northern New Mexico Telemedicine project.

Northern New Mexico Clean Room (High-Technology Training Center)

The IPO has formed a partnership with NNMCC in providing technical assistance and other assistance to the microelectronics program director. This year, IPO and other area contractors conducted a feasibility study to determine whether moving a mobile clean room donated by Lawrence Livermore National Laboratory would benefit the college at a cost savings. A trip to the clean-room site determined that it would not be cost effective to move that mobile room here. NNMCC is now proceeding with plans to erect a new facility, and the Laboratory through the IPO will assist in moving some useable salvaged material donated by Lawrence Livermore.

As part of this initiative, a proposal was written and submitted to the National Science Foundation for funds to cover equipment and maintenance of the facility.

Business Development

Small Business and Entrepreneurial Initiatives

The **Small Business Initiative (SBI)** has been funded by the Department of Energy (DOE) Defense Programs Headquarters since FY93 to provide small businesses access to the technical expertise of a DOE national laboratory. In FY96, the Laboratory SBI program focused the bulk of its funds on north-central New Mexico small business development. There are various ways the Laboratory works with the small business sector.

The **SBI North-Central New Mexico Economic Impact** program supported large research and development projects for ten regional small businesses. Two new companies have been assisted through this program with funding to mature technologies, (**SyntheMet)**, based on directed light fabrication of specialty wire, and **Speech Technology, LLC**, based on film and video translation technology. Both add to the economic diversity of the region and could potentially add job opportunities in the near term. Two existing companies have matured their technologies through this program: (1) **Energy-Related Devices of Los Alamos** is developing a miniature fuel cell for the communications industry, and (2) **Raton Technologies** is developing an underground communication system for the mining industry.

Directed light fabrication technology can be applied to certain industrial production made in a required shape or near-net shape.

Photo by LeRoy Sanchez

Nearly one-third of our technical assistance projects, which focus on short-term manufacturing problems, were from New Mexico. A technical assistance project with **Acoma Optical of Santa Fe**, an eyeglass lens supplier for both the retail and wholesale trade, has grown into a successful collaborative research and development partnership. This relationship, funded under the North-Central New Mexico Economic Impact program, may soon result in a more efficient approach to eyeglass lens manufacturing.

North Star Research Corporation of Albuquerque has benefited from a personnel exchange with a Laboratory staff member. North Star is part of a consortium of companies commercializing plasma-source ion implantation, a technology to harden metals and thus to lengthen the life of machine tools.

Training

To increase awareness of entrepreneurship, two community-wide training programs were sponsored this year. In June, **Launching a Business Based on Laboratory Technology** attracted **130** Laboratory and regional business people. In September, the first follow-on training focused on markets: promotion and assessment. Several Laboratory staff and regional business people interacted with national and regional market development experts.

Photo by LeRoy Sanchez

Training provided by the Laboratory.

Other training efforts include **Small Business Innovative Research** proposal writing workshops that the Laboratory cosponsored with Sandia. Workshops are offered around the State annually to encourage the participation of small businesses in this national program. Below is a summary of our training accomplishments.

- The Laboratory has funded proposal workshops since early 1980.
- The Small Business Innovative Research and Small Business Technology Transfer Program (SBIR/STTR) provides seed capital for New Mexico companies.
- As a result of the training, more than $200 million goes to New Mexico firms.
- The survival rate for these companies is approximately 75%.

Medite Plant Emissions Cost Control Analysis

The Medite Company of Oregon operated a fiberboard manufacturing plant in Las Vegas, New Mexico, until May of 1996. The plant, which employed several hundred people, was shut down following a fine levied by the New Mexico Environmental Department for violation of emission standards. The Medite Corporation conducted a cost-benefit analysis to explore various conventional emission control systems and determined that all available options were too costly. After several months of study, the decision to close the plant came in late May.

In an effort to keep the plant operational and the local work force employed, the Laboratory was brought in as a potential partner. It was thought that installation of a new technology under development at the Lab might significantly reduce the emission system costs. This would allow the plant to continue operations or make the purchase of the plant by another

company more likely. This new technology, called "silent discharge plasma" (SDP), had already been demonstrated as cheaper and cleaner than standard technologies for controlling some pollutants. A two-part study was initiated to see if it would be equally successful at Medite.

A team of scientists researched the applicability of the SDP technology to the Medite emissions. Bench-scale tests were performed that showed that SDP could achieve a 90% pollutant destruction efficiency. However, the economic analysis was not as promising. The cost analysis determined that the initial studies conducted by Medite for the installation of standard technologies were accurate and that associated costs would prevent an SDP system from being installed at a significantly cheaper rate. The report concluded that SDP technology was not a cost-effective solution to the Medite emissions problem but is still a viable potential for other types of production facilities.

The report was prepared and distributed to Medite, the New Mexico Environmental Department, and the City of Las Vegas. The plant has been sold for dismantlement, but it is our hope that the data provided by the Medite study will be useful in the event that a new production-type facility is constructed at the old Medite site.

Limited-Term Use of Laboratory Property

The Laboratory has created a new service for New Mexico companies that provides the use of specialized Laboratory equipment to companies if the equipment is not needed for Laboratory mission purposes. The service is identified as the Limited-Term Use of Laboratory Property program ("Tulip" program). New Mexico small businesses may borrow underutilized government property for research and development purposes at no charge. However, computer hardware and software are not available under this program. Two start-up companies have taken advantage of the program this year: **New Mexico Nano-Energetics of Española and Barrier Technology of Los Alamos.**

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SUBCONTRACTING /PROCUREMENT

History

The Laboratory is engaged in the procurement of goods or services related to research and development. Subcontracting at the Laboratory accounts for the single largest activity that directly impacts economic growth. The Laboratory also buys a wide array of standard supplies, scientific equipment, and a variety of services associated with operating the Laboratory.

Business Operations Division

The Business Operations Division (BUS) at the Laboratory is responsible for the procurement of goods and services at the Laboratory to meet its programmatic needs. Some of the programs that the Laboratory is involved in include research in energy, nuclear safeguards and security, biomedical and computational science, environmental protection and remediation, and materials science. BUS ensures that supplies and services required by the Laboratory are obtained in an economical, efficient, and timely manner.

Socioeconomic Program

The Laboratory has distinguished itself as a leader in providing subcontracting opportunities and programs to small; small, disadvantaged; and women-owned businesses. Numerous approaches, such as set-aside programs and specific business development initiatives ensure that small businesses have the maximum opportunity to compete for Laboratory subcontracts.

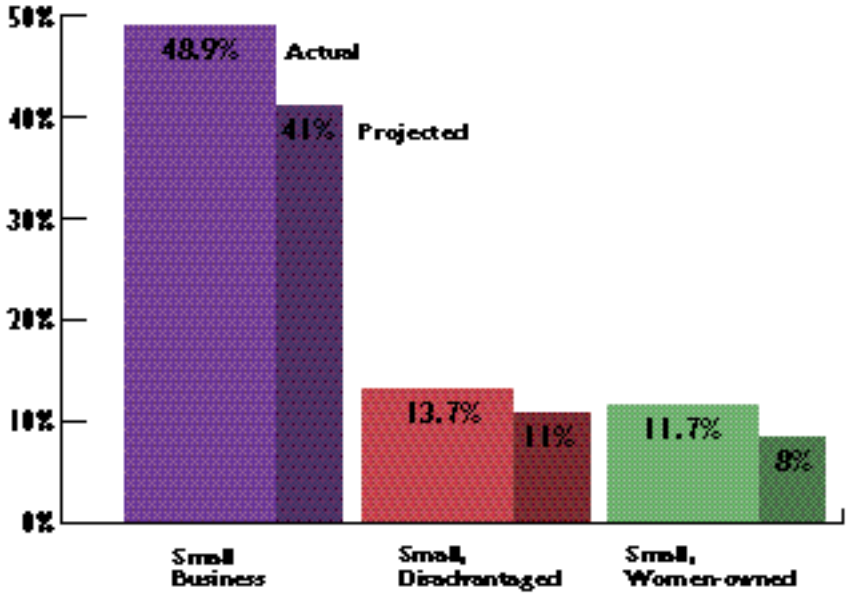
Goal Accomplishments

In 1996, the Laboratory far exceeded its socioeconomic goal for small; small, disadvantaged; and women-owned businesses. A total procurement budget of **$601.8 million** of its annual $1.1-billion-dollar budget was spent by the Laboratory on goods and services needed to support primarily technical operations.

The achievement of socioeconomic goals, as with all contract requirements, is the responsibility of everyone at the Laboratory, including the small business community. The Small Business Office and the Procurement Manager develop goals designed to

achieve increased participation with the small business community. Procurement activity regarding the use of small businesses is monitored and reported monthly to each buying group, including technical organizations.

FY96 Socioeconomic Goals



Northern New Mexico Initiatives

The Laboratory spent **37% ($224.7 million)** of the Laboratory's $601.8 million unconstrained procurement budget with **northern New Mexico businesses**. Additionally, the Laboratory aggressively engaged in outreach activities and development of the following programs to assist and maximize procurement opportunities in the local northern communities:

- **Northern New Mexico Procurement Advisory Council.** The Council provides advice to the University and the Laboratory regarding the use of regional purchasing strategies to assist in economic development.
- **Outreach/training programs.** The Laboratory conducts or sponsors outreach activities for networking purposes, such as Expos, Procurement Fair, Info Fair, and Meet the Buyer sessions.
- **Small Business Database.** The database includes information on **4000 suppliers** and **227 vendors** from New Mexico.

It also provides businesses with information on "How to Do Business with Los Alamos."

- **Economic development.** The Laboratory developed partnerships with various organizations to promote economic development, such as local Chambers of Commerce, nonprofit organizations, and other agencies.
- **Northern New Mexico assessments.** The Small Business Office partnered with the Laboratory's Environment Safety and Health (ESH) Division and the nonprofit Industry Network Corporation to perform competitiveness reviews at no cost for small businesses to help them identify strengths and weaknesses.
- **Outreach centers in Española, Taos, and Los Alamos.** A business coordinator from the Laboratory is rotated on a monthly basis. The purpose is to discuss procurement opportunities or any other concerns.
- **Local use of purchase cards.** Approximately 800 purchase cards have been issued to Laboratory technical and buying staff, totaling approximately **$12 million** per year for the procurement of goods and services at the Laboratory.
- **Training.** The Small Business Office provides training and encourages buyers and end users on the importance of the small business program.
- **On-site tours of northern New Mexico small businesses.** Laboratory buyers and end users accompany the small business coordinators in on-site tours to identify products or services offered by northern New Mexico small businesses for use at the Laboratory.
- **Information sessions on Laboratory programs.** Project Leaders and buying staff conducted an Info Fair to provide the small business community with an understanding of current and future projects at the Laboratory, anticipated procurement expenditures, and identification of goods required. The fair was attended by **300** business leaders.
- **Strategic Learning Services.** The Laboratory partnered with the Strategic Learning Center to increase procurement opportunities and expand the supplier base in northern New Mexico.

Photo by LeRoy Sanchez

Presentation to Kiwanis Club on "How to do Business with the Laboratory."

- **8(a) program.** This program provides government contracts to small companies owned by economically disadvantaged persons. The Laboratory is instrumental in setting aside 8(a) requirements, as appropriate. In 1996, the Laboratory set aside and awarded **$8.6 million dollars** to 8(a) program participants.
- **Prime contractors.** A lower-tier subcontracting fair was conducted to foster networking opportunities for small businesses. The fair was attended by **500 participants** that met with Laboratory prime contractors, federal agencies, and the State of New Mexico.
- **Live radio talk shows.** The Laboratory uses live radio talk shows to communicate subcontracting opportunities.
- **Toll-free telephone number.** Businesses may call 1-800-472-9861.

Supplier Training

The Laboratory provided ongoing opportunities for small businesses to enhance their capabilities by offering a comprehensive training and education program. The following seminars were sponsored in 1996:

- "How to Do Business with Los Alamos National Laboratory" seminars provide suppliers with an overview of the Laboratory's program requirements and subcontract processes to assist in marketing their products or services.
- "How to Develop Winning Proposals" provides the suppliers with valuable information and prepares them to bid for government subcontracts.

Photo by LeRoy Sanchez

Renovated vendor lobby for marketing of products and services.

Small Business Office/Vendor Relations

- The Small Business Office at the Laboratory provides a Vendor Lobby on its premises so that businesses can market directly to buying and technical personnel. The Vendor Lobby is equipped with six booths, telephone directories, and electrical outlets. The Vendor Lobby is used for networking purposes.

- Businesses can announce their visits to the Laboratory and describe their product or service in the "Industry Representative Newsletter" on the World Wide Web from the Laboratory home page under "LANL News."

Socioeconomic Awards

- The **Small Business Administration (SBA)** honored the Laboratory with its highest rating for compliance and for having an outstanding **"world-class"** subcontracting program to assist small, small disadvantaged, and women-owned businesses.
- The **Rio Grande Minority Purchasing Council (RGMPC)** honored the Laboratory with the **"Corporate of the Year"** award for its involvement, support, and dedication to the small business community.
- The Laboratory was honored with the RGMPC **"Sponsor of the Year"** for its sponsorship support to the Council and its involvement in the small business community.

RN95-129-020

Acceptance of SBA award of distinction by the Laboratory.

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COMMUNITY OUTREACH AND INVOLVEMENT

The Laboratory conducts public and community outreach and involvement activities to (1) inform constituencies about Laboratory operations and their immediate and long-term effects, (2) give stakeholders an opportunity to participate in the decision-making process regarding activities that affect them, and (3) be a good neighbor to the citizens of Northern New Mexico.

The Community Involvement and Outreach Office (CIO) supports Laboratory goals, initiatives, and scientific and technical programs by involving stakeholders in decisions that affect them. To accomplish this goal, the office fosters greater public understanding of science and technology and promotes meaningful two-way communications with local, national, and global audiences about Laboratory programs and activities. The office also supports the Laboratory in its relationships with its neighbors and serves as a conduit for feedback to both the Laboratory and the public on how this relationship is going and how it can be improved.

Examples of the Laboratory's outreach efforts include public meetings, tours, outreach offices, scholarships, civic memberships, planning and technical assistance, and equipment loans and gifts. These activities benefit civic organizations, special interest groups, nonprofit organizations, the general public, retirees, and tribal, county, and municipal government.

New Outreach Centers

Certainly one of the office's greatest accomplishments during the last year was the opening of the Española Outreach Center and the formation of a University of California Northern New Mexico Office. Combined with the Los Alamos and Taos Outreach Centers, they function to benefit both the Laboratory and the communities they serve. The centers provide access to information regarding the Laboratory and its missions, plus other services based on community needs. One important goal of the outreach offices has been to help foster economic development. This is accomplished by assisting local businesses and governments to work better together. These collaborations will enable business owners to better supply the Laboratory and other organizations with products and services that are needed.

Photo by LeRoy Sanchez

The University of California's Northern New Mexico Office officially opened August 23, 1996.

Photo courtesy of CIO

The outreach centers provide community access to the Labo - ratory.

- **The Los Alamos Outreach Center** was established as a Community Reading Room in 1989 in response to a federal mandate. This mandate required the Laboratory to make all documents related to the Environmental Restoration Project available to the public. Since then, the center has expanded to include a variety of resources on Laboratory projects and issues related to DOE. The University of California's Northern New Mexico Office is located at the Los Alamos Outreach Center and exists to strengthen its relationships with regional communities and others within the state. Write or visit the Los Alamos Outreach Center at 1350 Central Avenue, Suite 101, Los Alamos, New Mexico 87544 or call (505) 665-2127 (toll free, 1-800-985-7232).
- **The Taos Outreach Center** opened in October 1995 in response to a request from the mayor, town manager, and other community leaders. The center supports interactions between the Laboratory Community Council, Taos Landfill Study Initiative, Taos County Commission, the local business community, school district representatives, Taos Pueblo, and community leaders and others. The center also provides technical assistance to Taos County for its computer information system. In addition, the center invites and offers the community opportunities to discuss human resources, industrial partnerships, and vendor issues with Laboratory representatives. Write or visit the Taos Outreach Center at 630 Paseo del Pueblo Sur, Taos, New Mexico, 87571; (505) 751-3405.
- **The Española Outreach Center**, which opened in April 1996, has been the focal point for Laboratory representatives to visit individuals and small businesses and respond to or discuss issues regarding procurement, employment, American Indian programs, personnel benefits, and industrial partnerships. Write or visit the Española Outreach Center on the campus of the Northern New Mexico Community College, 1002 N. Oñate Street, Española, New Mexico 87532, (505) 753-3682.

Direct Economic Impact

The CIO is working to increase the positive economic impact of the Laboratory in two ways. First, the office is working with and encouraging other organizations to look at new ways to increase

the flow of dollars into surrounding communities from other activities. Second, the office has actually increased the dollars spent in the community. Some of these increases come from rented office space in Taos, Española, and Los Alamos; refreshment fees; other logistical support in connection with public meetings; and other off-site activities. This office also spends money on memberships/sponsorships to various economic development and other civic organizations. Last year the Laboratory spent over **$100,000** on these types of activities in surrounding communities. In addition, CIO distributed **$20,000** in scholarships to students from northern New Mexico.

Some of these memberships and sponsorships include the following:

Los Alamos Chamber of Commerce

Española Chamber of Commerce

Santa Fe Chamber of Commerce

Taos Chamber of Commerce

Albuquerque Hispano Chamber of Commerce

De Colores

Hispanic Cultural Foundation

Santa Fe Community Day

Los Alamos Summerfest

Taos Fiesta

Española Fiesta

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INTERACTIONS WITH STATE GOVERNMENT

As in past years, the Laboratory provided support and assistance in 1996 to all three branches of State Government in a diverse array of areas including information systems, telemedicine, economic development, specialized training, strategic planning and facilitation. A number of State activities have been supported through the Laboratory's Government Relations Office and cooperating Laboratory organizations. Highlights include the following:

- **Economic Development.** During 1996, the Laboratory provided a full-time staff member to the Secretary's Office of the State Economic Development Department. As Special Assistant to the Secretary, this staff member assisted the department in developing a strategic plan. The plan focuses on improving the State's business climate, emphasizing technology commercialization through new start-ups, and enhancing the work force through quality education. This staff member also provided technical assistance to the Alliance for the Commercialization of Technology on multimedia technology acceleration. He served as the Department's liaison with both the Northern New Mexico Defense Adjustment Task Force and the related Community Re-Use Organization.
- **Governor's Science and Technology Advisor.** The Laboratory provided funding to the State to ensure staffing for this position.

Photo by James E.Rickman, PA-1

Gary Bratcher, New Mexico Secretary for Economic Development; Keith Roe, Chairman and President of Burns and Roe Enterprises, Inc.; Gary Johnson, Governor of New Mexico; Rich Joseph, Los Alamos National Laboratory's Accelerator Production of Tritium (APT) project officer.

State of New Mexico Efforts

Approximately four years ago, the Laboratory established an information technology partnership program with the State of New Mexico. During the past year, the Laboratory collaborated with the State on fourteen projects. The primary areas of technical focus are (1) computing, (2) information, and (3) communications.

Computing

The Laboratory offers in-depth knowledge about computing platforms ranging from large, powerful mainframes to industry standard personal computers. A typical collaboration addresses such issues as recommendations about new technology, both hardware

and software, capacity planning, local area network physical infrastructure layouts, and internal operation of proposed applications and computing platforms.

An example of this type of collaboration that occurred during 1996 was a joint project with the State Corporation Commission (SCC). The SCC had received a large sum of money both from federal and state sources to automate its Department of Insurance. The Laboratory was asked to do a technical feasibility review of the SCC's Information System Plan before the issuance of any contract with the private sector. The Laboratory provided a technical team whose expertise included: local area networking, personal computers, Intranet infrastructure planning, telecommunications, database administrators, and business software applications. The Laboratory provided technical expertise in the following five areas:

- analyzed the current computing environment
- proposed a new local area network implementation
- developed strategies on data migration and application
- identified a new computing platform and overall impressions of potential risks
- identified opportunities for leveraging benefits of the proposed computing platform

Information

The Laboratory provides a variety of information-technology consultation services to the State. Such services include strategic planning, project management, facilitation, organizational structure, resource leveraging, information architecture methodologies, and commission service.

A current example of the diverse consulting resources that the Laboratory uses to help the State achieve its ever-changing information-technology goals is a collaboration with the **Health Policy Commission** (HPC). The Legislature asked the HPC to develop a health-information system and a Health Information Alliance (HIA). When implemented, the health information system will be an Internet-based suite of applications that will provide a two-way exchange of information between the private sector and state government. The HIA is composed of public and

private high-level management representatives from the major health stakeholders in New Mexico. This joint public-private initiative will ultimately result in a more cost-effective vehicle for collection and delivery of health services in all areas of the State. The Laboratory provided assistance with the following:

- a strategic plan
- ongoing facilitation
- technical feasibility evaluations of project milestones
- technical design of a network
- in-depth knowledge of emerging health technologies such as Telemedicine

Communication

Because of its unique requirements for both high-speed communications and its diverse computing platforms, the Laboratory offers insights into a vast array of communication technologies. The consulting services are described as follows:

- product evaluations
- service organization strategies
- resource requirements evaluations
- standards recommendations

During this last year, Director Sig Hecker and Governor Johnson signed a Joint Powers Agreement that created a Laboratory-chaired public/private consortium called Connect New Mexico. Its purpose is to provide a developmental and utilization strategy for the public and private sectors with regards to the National Information Infrastructure in New Mexico.

Connect New Mexico is concentrating on universal access, health, education, and economic development. The overall strategy includes reducing duplication of infrastructure investment, promoting agency partnering, assisting in the acquisition of matching federal funding, and promoting a high-speed, cost-effective infrastructure that leverages opportunities for information technology utilization.

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Interactions With Tribal Governments and Communities

Introduction

Official relations between the Laboratory and American Indian tribes are maintained in support of government-to-government relations as recognized by the Federal Government and the sovereign Indian tribes. The Laboratory has working relationships with up to **15 American Indian tribal governments** and several tribal consortia to address environmental, health, cultural, education, employment, and socioeconomic issues of mutual interest.

The guiding principles for the Laboratory's relations with Indian tribes are based on executive orders and Federal policies such as the White House memorandum of April 29, 1994, on "Government-to-Government Relations with Native American Tribal Governments" and DOE's American Indian Policy. The Laboratory Director's Office and Community Involvement and Outreach (CIO) are responsible for maintaining official relations with the Indian tribal governments. The relations between the Laboratory and the Indian tribes are coordinated and conducted by a staff member who is designated as the Staff Advisor for Tribal Government Relations in CIO. The Educational Outreach Coordinator, also in CIO, specializes in promoting Laboratory educational and employment opportunities for Indian communities. The following activities demonstrate how the Indian tribes and the Laboratory are cooperating to form mutually beneficial relationships.

Activities

- **Cooperative Agreements**. In November 1994, three cooperative agreements were signed with the pueblos of **San Ildefonso, Cochiti, and Jemez** by the Director of the Laboratory, Sig Hecker, on behalf of the University of California. These agreements provide a formal relationship under which issues of mutual concern and interest are addressed. On December 12, 1996, **Santa Clara Pueblo** signed a similar agreement with the Laboratory. The Department of Energy also has formal agreements known as “accords” with the pueblos of Cochiti, Jemez, Santa Clara, and San Ildefonso. Funding provided to the tribes by DOE supports the development of environmental programs to assess potential impacts related to operations at the Laboratory.

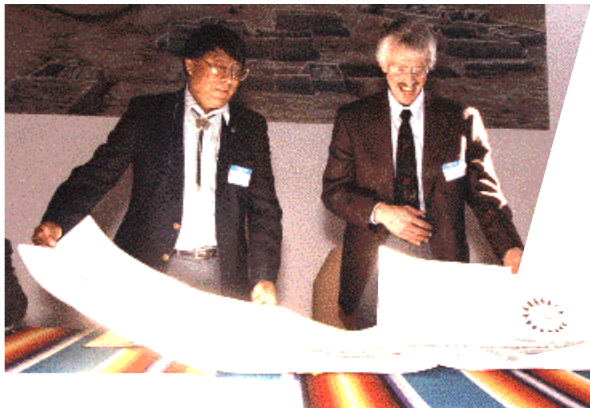

Photo by LeRoy Sanchez

Gilbert Tafoya and Sig Hecker looking at the cooperative agreement signed by Santa Clara Pueblo.

- **Executive Meetings between Laboratory Management and Tribal Leaders.** Director Sig Hecker and senior Laboratory staff held an executive meeting at Cochiti Pueblo with four tribal governors to help fulfill the goals of the cooperative agreements. The meeting included displays and presentations by tribal and Laboratory staff to show progress on issues and activities related to environment, safety, and health; environmental restoration; waste management; and cultural resources protection.
- **Environmental Quality Forums and Interactions**. These forums and interactions facilitate dialogue and working relations between Laboratory and tribal staff on current environmental issues of concern and interest, such as water quality, air quality, environmental restoration, environmental surveillance, radioactive waste management, hazardous material transportation, and stockpile stewardship.

Tribal-Laboratory Interactions:

- The Laboratory conducts environmental surveillance activities on **San Ildefonso Pueblo** lands under a memorandum of understanding (MOU), which was renewed this year, between San Ildefonso, the Bureau of Indian Affairs, and the Department of Energy.
- Air sampling stations were in operation at the pueblos of **San Ildefonso, Taos, and Jemez** as a part of the Laboratory's environmental surveillance network. Results are provided to the pueblos and published in the Laboratory's Environmental Surveillance Report that is available to the public.
- Soils, produce, herbs, eggs, fish, game animals, and honey were collected for radionuclide and heavy metal analysis by the Laboratory's Ecology Group (ESH-20) at or near the pueblos of Jemez, San Ildefonso, and Cochiti. The results have been provided to the tribes and are used to assess the Laboratory's potential impact on the human food chain. A Laboratory employee from San Ildefonso Pueblo participates in the collection and preparation of samples for analysis, and is assisted by an undergraduate student who is also from San Ildefonso Pueblo. The collection of fish from Cochiti Lake, before and after the Dome Fire, in conjunction with the staff from the pueblo of Cochiti's environmental program,

Photo by Mike Kolb, CIO

Environmental program staff from Cochiti Pueblo assisted the Laboratory's Environment, Safety and Health staff in preparation of fish collected from Cochiti Lake for analysis of potential radionuclide contamination.

was of special importance this year. They also participated in the processing of the fish for radiological and nonradiological analysis. These interactions have introduced tribal representatives to the Laboratory's environmental surveillance and monitoring processes and have provided an opportunity for hands-on laboratory work experience.

- Neighborhood Environmental Watch Network **(**NEWNET**)** units at the pueblos of San Ildefonso and Cochiti provide real-time information on regional and national airborne radionuclide concentrations and atmospheric conditions for the pueblos and the Laboratory. This information is available on the Internet and on a data display monitor that is available to the pueblo community in the San Ildefonso Tribal Building.
- Staff from the Water Quality and Hydrology group interacts with pueblo representatives through joint sampling excursions, site tours, and exchange of technical information on commonly shared water-quality concerns and interests. Results from a joint tribal/Laboratory plan for sampling and analysis of ground and surface water from pueblo lands for tritium and other potential contaminants were provided to all pueblo environmental offices. The Laboratory is also participating with the **U.S. Geological Survey** in Cochiti Pueblo's study of Cochiti Lake water quality and sediments.
- A pilot study for implementation of restoration work plans for Los Alamos Canyon located on both Laboratory and tribal land was initiated on March 1, 1996, with cooperation from San Ildefonso Pueblo. The study provides an opportunity for tribal participation in the development of an environmental restoration model that includes activities such as characterization, background sampling, and biological, archaeological, and cultural resource surveys.
- A radiological performance assessment (RPA) for the Laboratory's low-level radioactive solid-waste storage facility at TA-54, Area G, is underway. The RPA is the technical basis for determining the long-term safety of shallow-land burial of low-level radioactive solid waste at the facility. **San Ildefonso Pueblo**, owner of land near Area G, is concerned about potential environmental impacts on its land. The Pueblo's participation in the RPA has been arranged through an MOU with the Laboratory. The MOU provides an

Photo by Barbara Grimes

Cochiti Pueblo tribal leaders together with Laboratory personnel touring cultural sites.

unprecedented opportunity for San Ildefonso Pueblo's review of detailed technical information and data on the facility and will help educate the Pueblo on the facility's operations, performance, and future plans.

- **Educational initiatives.** The Laboratory funded a total of **$17,000** for scholarships and educational initiatives to **eleven** New Mexico Indian communities through this fiscal year. The tribal governments selected the scholarship recipients. This effort reflects the Laboratory's commitment to promote education in the region.
- **Tutoring of American Indian students.** Ten Laboratory employees serve as volunteer tutors for the **Santa Clara Pueblo** tutoring program. The tutors provide tutoring in math, science, and reading for students in grades 1 through 12.
- **Technical assistance.** An MOU was signed by **Jemez Pueblo** and the Laboratory to provide technical assistance and loan of equipment, valued at over **$14,000**, for the Pueblo's DOE-funded, wind energy feasibility study. The Laboratory's Air Quality Group, ESH-17, provided training on use of the equipment and gave technical advice.

Photo by Barbara Grimes

Native American students learning about the canyon restoration clean-up program.

Technical advice, consultation, and training were provided by Laboratory staff to several Indian pueblos on developing telecommunication capabilities and Internet access. The pueblos wish to attain state-of-the-art communications capabilities among the tribes' departments and programs, and with the Laboratory and other entities.

- **Transportation and emergency response**. Incidents related to shipments of radioactive and other hazardous material to and from the Laboratory are of concern to Indian tribes near Los Alamos. Therefore, the Laboratory conducted an emergency response workshop that included pueblo, State, and other professionals who respond to emergency incidents. A potential goal identified at the workshop is a regional emergency management plan that includes a process for cooperation and coordination among tribal, State, and local governments and communities.

The Laboratory's Emergency Operations Center is providing technical assistance to **Santa Clara Pueblo** to develop a pilot emergency response plan. The plan could serve as a model for other pueblos and communities who have similar needs for emergency management.

- **Cultural resources protection and management**. The Laboratory works closely with Indian tribes on the protection of cultural resources and sites on Laboratory land. A Laboratory employee from San Ildefonso Pueblo assists the Laboratory's archaeologist by providing a tribal perspective. The Tribal, Laboratory, and DOE Cultural Resources Working Group provides a forum to help fulfill federal requirements for consultation with American Indian tribes on cultural resources.

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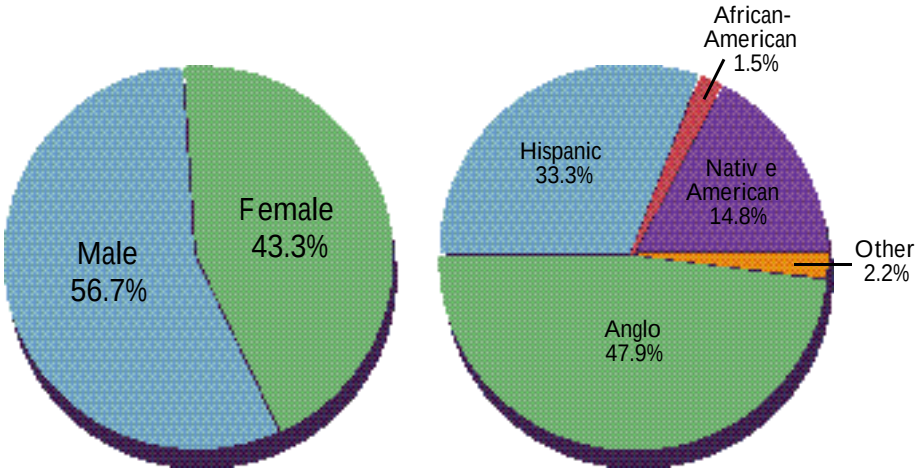
SCIENCE EDUCATION PROGRAM

Introduction

The Laboratory has a unique contribution to make to science, mathematics, engineering, and technology education. The mission of the Science Education Program is to apply the scientific and technical resources of the Laboratory to the critical needs in education. Our goals are to do the following:

- Improve the quality of science, mathematics, engineering, and technology education
- Enhance the technical literacy of the public
- Contribute to systemic change in mathematics and science education
- Ensure a highly trained, diverse workforce

With this mission and these goals in mind, the Laboratory conducts a wide variety of science education projects. During 1996, Los Alamos conducted a total of **30 projects** that had **2387 direct participants**. The indirect impact of these projects was significantly greater because many of the direct participants were teachers, each of whom teaches 100 or more students. Also, some of our projects involve working with the schools to help them apply new technologies to the educational process that indirectly impact entire districts.



Left: *Gender of participants in FY96 Science Education Program.*
Right: *Diversity in Science Education Programs at Los Alamos.*

The following three projects exemplify our direct and immediate impact on the educational system by incorporating new technologies.

Educational Technology Support for Schools

Photo by Dennis Gill

Native American employee as role model describing his work to children.

During this past year, the Science Education Program at the Laboratory has helped 86 primary schools in 17 districts across New Mexico to plan and implement computer networking infrastructures, as well as 6 community colleges and 12 other sites, such as departments of education and regional technology centers. Over **400** teachers and administrators are involved in this program and are impacted by these efforts. A total of 46 days of teacher and staff training workshops were held during the year.

Besides sharing knowledge, the Laboratory's Science Education Programs provided 184 excess items of equipment (mostly computers) to 133 teachers in 82 schools across 43 New Mexico school districts and 12 out-of-state districts. The total value of this equipment was $568,000.

We continued to form partnerships with community colleges and technology centers. The colleges and centers have agreed to become "regional hubs" for their communities and surrounding areas. Current regional hubs include the University of New Mexico (UNM) at Gallup, Crownpoint Institute of Technology, Northern New Mexico Community College, Navajo Community College (both Shiprock and Tsaile campuses), UNM at Zuni, Jicarilla Apache Department of Education, La Plaza Telecommunity (Taos), The Technology Learning Center (Santa Fe), Kirtland Technology Center, Cooperative Education Services (Albuquerque), and the New Mexico State Department of Education.

The Laboratory provided teacher workshops this year on how to integrate technology in the educational process. The teachers from these workshops continue to interact through Internet and share their knowledge with neighboring schools and districts.

Photo by James Rickman

Russell Romero, Angelique Neuman, and Marlene Platero of the Mentored Collaborative Research Program spent the summer at the Laboratory doing research on the crystalline properties of erbium oxide.

Collaborations with New Mexico Universities and Two-Year Colleges

Many of the Science Education programs are implemented in collaboration with New Mexico universities and two-year colleges. During this past year, three teams of students and faculty

from the University of New Mexico and Highlands University came to the Laboratory to do research for the summer in the **Faculty and Student Teams (FAST)** program.

The Laboratory sponsored a Manufacturing Technologies Institute at New Mexico State University for faculty members of two-year colleges. Undergraduate and graduate students from New Mexico colleges and universities come to the Laboratory as research interns in the Underrepresented Minorities and Females science program. These students work with Laboratory researchers in areas close to their field of study and gain knowledge about current research topics.

In the Regional Two-Year College Initiative, the Laboratory is actively involved with the following institutions: Luna Vocational Technical Institute, Northern New Mexico Community College, San Juan College, Navajo Community College (two campuses), UNM at Los Alamos (UNM-LA), Crownpoint Institute of Technology, Santa Fe Community College, New Mexico State University at Carlsbad, Albuquerque Technical-Vocational Institute, United World College, Southwestern Indian Polytechnic Institute, and New Mexico State, Doña Ana Branch.

The following education programs are conducted jointly with colleges and universities:

- The **Atomic, Molecular, and Optical Physics program** with UNM and UNM-LA
- The **Supercomputing Challenge** with all of the New Mexico universities
- The **Pre-Service Institute for Science and Math** (PRISM) with UNM-LA
- The **Summer Experience for the Economically Disadvantaged** (SEED) programs with UNM-LA

Teacher Enhancement Pr ogram

Teacher Opportunities to Promote Science (TOPS) is a three-year, middle-school, teacher-development program for teachers in rural areas of New Mexico with little access to technical resources and with predominantly Native American and Hispanic student populations. One hundred fifty teachers have participated in the program since its inception in 1991.

CN94 523

Middle school teachers participating in a teacher enhancement workshop building a solar-powered model car.

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ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT PROGRAM

Program Overview

The Laboratory's Environmental Management program includes environmental restoration (ER), waste management (WM), integrated science and technology (IST), field operations, and the "Red Team." The environmental restoration and waste management programs are the largest components of the Environmental Management program, totaling over **$100 million**. The two programs are directed at maintaining safe and compliant operations, meeting our commitments to the DOE, the Environmental Protection Agency, the State of New Mexico, our tribal neighbors, and the local stakeholders. The environmental restoration program is responsible for cleaning up the legacy of past practices at the Laboratory and in the last two years has exceeded all performance expectations and milestones. Of the 2100 sites in the environmental restoration program, over 1200 have been cleaned up or identified as requiring "no further action" (NFA). The waste management program is charged with treating, storage, and disposal of the Laboratory's hazardous and radioactive waste produced by the operations of the mission programs at the Laboratory. This program also keeps the Laboratory compliant with federal and state regulations, as well as characterizing, monitoring, and preparing stored on-site waste slated for shipment to the Waste Isolation Pilot Project (WIPP) near Carlsbad, New Mexico.

The integrated science and technology and the field operations programs bring new science and technology-based solutions to environmental problems at Los Alamos and the DOE complex. Their goal is to develop new technologies that allow DOE to solve environmental problems more efficiently, more quickly, less expensively, and with enhanced safety. Although these programs are relatively small in funding scope compared to the ER and WM programs, their impact can be quite large. The "Red Team" is an independent panel of technical experts drawn from the national laboratories, industry, and academia to evaluate and recommend enhanced management and technology approaches to the environmental management programs across the DOE. They have been successful in identifying streamlined environmental restoration and waste management technology and management solutions that result in better service and less cost to the DOE.

Impact of the Environmental Management Program on New Mexico

Photo by Gracia Coffin

Use of segmented-grate system to separate uranium-contaminated soil.

Photo by Gracia Coffin

Containerized vat leach (CVL) system to remove uranium from soil.

The first, and most visible impact of the Environmental Management program on northern New Mexico has been that of being a good neighbor. The Program Director for Environmental Management is a member of the Laboratory's Citizen's Advisory Board where regional concerns of citizens from northern New Mexico are heard and discussed. The main focus of the environmental restoration and waste management programs is to ensure that the Laboratory remains compliant in its operations and in cleaning up its legacy of waste to the satisfaction of federal and state regulatory agencies while at the same time addressing tribal, local, and citizen concerns. Thus, the Environmental Management program works closely with the Laboratory's Community Involvement and Outreach Office in meeting with stakeholders and providing information and outreach on the status of our environmental operations programs.

Direct Economic Impact

The Environmental Management program also has a direct economic impact on New Mexico. Approximately 60 percent, or over **$60 million**, of the environmental restoration and waste management programs is subcontracted. The subcontractors are a mix of national companies that have located offices in Los Alamos and the surrounding communities to provide environmental management and other services to the Laboratory. Thus, the Environmental Management program provides approximately 600 non-University of California jobs for the regional economy. A significant number of these jobs have gone to local citizens and play an important role in meeting the Laboratory's regulatory requirements as well as meeting the needs of local stakeholders.

The Future

The Environmental Management program office continues to assess opportunities for further subcontracting of environmental service opportunities. Although the budgets for these activities have been declining in the past few years, we anticipate that they will ultimately stabilize, thus providing long-term employment opportunities in the northern New Mexico regional economy.

The DOE and other federal agencies' investment in science and

technology solutions through the integrated science and technology program should result in technology spin-offs that could provide new business start-up opportunities in northern New Mexico. These new start-up companies will provide additional employment opportunities as well as enhance economic development in the local and surrounding communities. The Environmental Management program office works closely with the IPO to identify partnerships between Laboratory scientists and the private sector as well as in the identification of technologies appropriate for start-up opportunities.

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Supercomputer Center Used Against Fraud

OS ALAMOS, NEW MEXICO, U.S.A., 1996 JAN 31 ... Medicare system just became more difficult "... reement between the Health Care Fi... US Health and Human Service... oratory. Under the agre... vide advice and anti... computer pro...

Motorola research ... join Los Alamos

THE NEW MEXICAN
SANTA...
FRIDAY, MARCH 14, 1997

Officials hope ...la attracts other ...ies to proposed ...park

...LEENE PARKER
...w Mexican

...mos National Laboratory spokesman Gary Kliewer said of the pending agreement.

The agreement will bring 10 to 20 Motorola employees to Los Alamos late this year, but everyone expects a much larger collaboration in the future, with additional Motorola people brought to town and possibly locals hired as support staff, he said.

More importantly, local officials hope that Motorola will act as an anchor to attract other companies to a proposed research park on 60 acres of land north of West Jemez Road near LANL's Otowi Building.

LANL will provide space for Motorola pending construction of the research park, Kliewer said.

"My understanding is that all the T's have been crossed and the I's dotted."

GARY KLIEWER
LANL spokesman

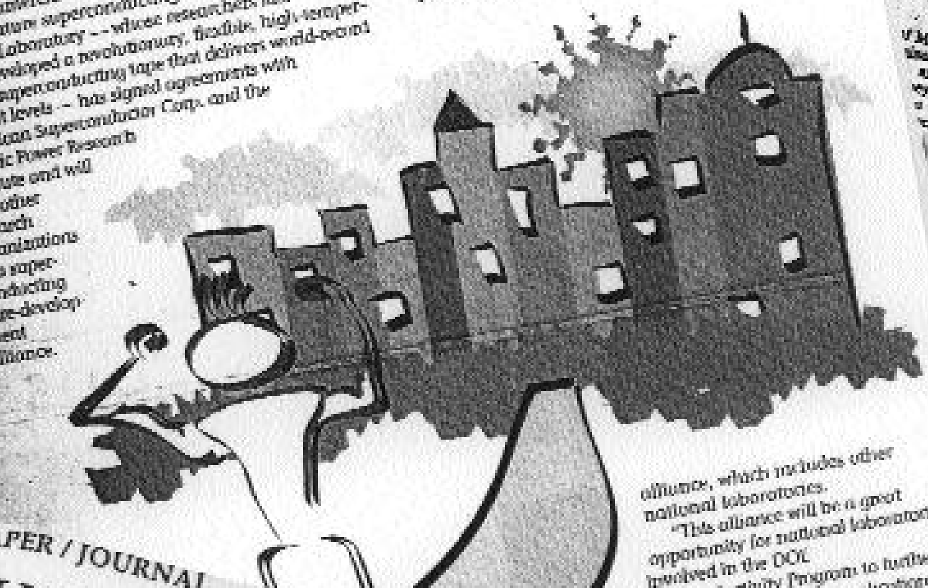
Lab to share 'super tape' technology with industry

Researchers at the Laboratory's Superconductivity Technology Center will lend their expertise to an alliance of industry and research organizations that plans to develop and commercialize "future-generation," high-temperature superconducting wires.

The Laboratory — whose researchers last year developed a revolutionary, flexible, high-temperature, superconducting tape that delivers world-record current levels — has signed agreements with American Superconductor Corp. and the Electric Power Research Institute and will join other research organizations in a superconducting wire-development alliance.

at a specific angle. A superconducting ceramic, yttrium barium copper oxide, then is deposited by pulsed laser on top of the cubic zirconia layer.

The precise orientation of the layers obtained through the IBAD process is a must for superconducting materials if they are to allow high current to flow through them. The technology will be among several that will be developed by the



alliance, which includes other national laboratories.

"This alliance will be a great opportunity for national laboratories involved in the DOE Superconductivity Program to further develop superconductivity applications that have great commercial potential," said ... "With American Superconductor's ... expertise and Electric Power ... expertise in identifying technolo... companies more ... potential." ... Los Alamos

Burns and ... chosen for ... tritium proj...

Work to be done at ...

...TEPHEN T. SHANKLAND
...istant Managing Editor

...Department of Energy has ... Burns and Roe Enterprises ... to be the industrial partner ...p plans for a possible ...-based facility to produce ... U.S. nuclear weapons

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Lab Prototype Work Could Mean New Jobs

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...rnal North
DATE: Friday, October 11, 1996
Page 1 Of 1

Journal Staff Report

Engineers from Los Alamos National Laboratory are starting to turn a Star Wars relic into a model for a new accelerator that will produce the gas essential to the power of nuclear weapons.

That accelerator will be built roughly four years from now in the sand hills of South Carolina.

But its design and work on its prototype ...ould still mean jobs for dozens of north...ern New Mexicans, lab contract... project said at the lab ...

Burns ...

Lab officials said they think workers from BREI's offices in New Jersey will also add to the regional economy.

"They're not going to come by themselves. They'll come with families. They'll be looking for housing. They'll be buying things," said Paul Lisowski, ... physicist leading the A... tion of Tritiu...

nies To Share LANL Work

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take part of that program and focus it on regional small businesses," said Charryl Berger, deputy director of the lab's Industrial Partnership Office.

The goal of the project, like similar technology-transfer projects at the lab, is to make technology developed in Los Alamos applicable beyond its initial application, which usually involves weapons, said Eugene Starks, a regional economic development official with the Partnership Office.

Other recipients

will be developed by existing central or northern New Mexico companies.

If lab researchers strike gold, products that could result include:

- A laser sensor used by an environmental clean-up company to detect hazardous chemical spills. The project is worth $72,000 worth of lab research assistance.
- A system used by a mining company to develop radio communications with underground operations. The project comes with $114,000 worth of lab research assistance.
- A small, reusable fuel cell powering anything from cellular telephones to portable compact-disc

The project

product. The out-of-state comp
has agreed to make the produc
northern or central New Mexic

The names of the companies h
not yet been released by the
pending legal agreements.

The 16 projects selected
research came from a pool o
proposals the lab received mo
from New Mexico.

The projects were reviewed
two teams.

The business-review team l
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was made up of a professor f
the Anderson School
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LOS ALAMOS MONITOR

NEWSPAPER / JOURNAL

BYTES

Thursday, October 10, 1996

Page 1 Of 1

Tritium Research To Bring $10 Million, 200 Jobs To LA

By STEPHEN T. SHANKLAND
Assistant Managing Editor

Tritium research = funding = more than new private sector jobs for Los Alamos. at was the message today when officials Los Alamos National Laboratory, the sector, and the Department of Energy at LANL today to describe the eco- pact they believe the Accelerator of Tritium program will have on economy.

program currently employs about es at LANL, a number that level for a few years, John ay at a roundtable discussion. r of the Los Alamos Neutron ANSCE)/Energy Research

esident of Burns and Roe his company currently to 250 for the private Burns and Roe, along ill be working with idea into an actual

ual-track option radioactive iso- lear weapons. bout 5.5 per- l eventually ing.

technical obstacles, has policy hurdles that must be overcome, Bishop said. One problem is that the U.S. has tried to keep civilian nuclear power reactors separate from military nuclear weapons production facilities — and has tried to encourage other countries to do the same.

One reason for the separation is to make proliferation of nuclear weapons technology that much more difficult, Bishop said.

On the other hand, the accelerator option appears to be more expensive and must be researched.

If DOE decides to pursue the APT option, an accelerator facility will be built at Savannah River Site in Georgia.

Regardless of which option DOE chooses, LANL and private sector partners will be receiving research and development funding for APT for coming years.

LANL conservativly estimates a $10 million in local procurement for goods and services such as computers, wires, machining operations, and support staff.

Paul Lisowski, in charge of the nuts and bolts of the APT work at the lab, said work on development of the front end of the accelerator will occur at the Low-Energy Demonstration Accelerator (LEDA) at Technical Area

In addition

Sep. 5, 1994

Roe

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LANL

peaking in an interview
ANL will be responsi-
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Currently, the Medicare
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